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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,511	09/23/2003	Yuichiro Miyamori	OKI 376	2583
23995	7590	09/19/2005	EXAMINER	
RABIN & Berdo, PC 1101 14TH STREET, NW SUITE 500 WASHINGTON, DC 20005			TRAN, BINH X	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/667,511

Applicant(s)

MIYAMORI ET AL.

Examiner

Binh X. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9-23-2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 3 of claim 2, the phrase "selected from" is improper Markush language.

The examiner suggests replacing "selected from a" to --selected from the group consisting of--.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et al. (US 6,358,821) in view of Moslehi et al. (US 5,296,385).

Respect to claim 1, Gupta disclose a method for forming a wafer comprising:  
spray coating (i.e. sputtering) aluminum (16) on one surface of the silicon wafer (10) and thereby forming an aluminum film;

spray coating (i.e. sputtering) a covering material (17) so the aluminum film (16) is completely covered and thereby forming a covering film (Fig 3).

Gupta fails to disclose the step of forming a masking film that cover the other surface of the wafer and removing the masking film. Moslehi teaches to form the masking layer (photoresist 12) to protect the wafer surface and stripping the masking layer at near end of the wafer-processing step (col. 4). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Gupta in view of Moslehi by forming the masking layer and removing the masking layer because this layer will protect the wafer surface during wafer processing step.

Respect to claims 2-4, Gupta discloses the covering film is aluminum oxide (i.e. ceramic material) and wherein the end portion of the aluminum film (16) is covered with the ceramic film (17) (Fig 3). Respect to claim 5, Gupta disclose the covering film (17) has a film thickness distribution (Fig 3).

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (US 2003/0075452) in view of Lawrence (US 5,622,875).

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Respect to claim 6, Hsu discloses a method comprising the step of:

polishing a surface of the wafer that is made of aluminum (paragraph 0023 lines 1-5);

applying anodic oxidation to the surface of the wafer thereby forming a film of aluminum oxide (abstract, embodiment 1-3).

Hsu fails to disclose the step of applying a mirror polishing to a rear surface of the wafer. Lawrence teaches to applying mirror polishing to the backside (rear) of the wafer (abstract, col. 8 lines 32-48). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Hsu in view of Lawrence by applying mirror polishing to the backside surface because it will produce a smooth surface with a mirror-like finish.

Respect to claim 7, Lawrence teaches the mirror polishing step is applied according to polishing.

7. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickey et al. (US 5,141,603) in view of Lawrence (US 5,622,875).

Respect to claim 6, Dickey discloses a method comprising the step of:

polishing a surface of the wafer that is made of aluminum (Fig 1);

applying anodic oxidation to the surface of the wafer thereby forming a film of aluminum oxide (Fig 1, col. 3).

Dickey fails to disclose the step of applying a mirror polishing to a rear surface of the wafer. Lawrence teaches to applying mirror polishing to the backside (rear) of the wafer (abstract, col. 8 lines 32-48). It would have been obvious to one having ordinary

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skill in the art, at the time of invention, to modify Dickey in view of Lawrence by applying mirror polishing to the backside surface because it will produce a smooth surface with a mirror-like finish.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dickey et al. (US 5,141,603) in view of Lawrence (US 5,622,875) as applied to claim 6 above and further in view of Heyerdahl (US 3,775,262).

Respect to claim 8, Lawrence teaches the anodic oxidation is applied using electrode and counter electrode (col. 3). However, Lawrence fails to disclose an electrode attached to the rear surface with a masking film partially formed on a portion other than the electrode. Heyerdahl teaches to attach an electrode to the rear surface with the masking film (14) partially formed on portion other than the electrode (Fig 2D, Fig 1C). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Dickey and Lawrence in view of Heyerdahl by attaching the electrode to the rear surface with a masking film on the other portion because this technique will allow us to selectively oxidizing the aluminum layer.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh X. Tran whose telephone number is (571) 272-1469. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Binh Tran*

Binh X. Tran